

24741-1539.txt
SEQUENCE LISTING

<110> Kerstin WESTRITSCHNIG
Margarete FOCKE
Anna TWARDOSZ
Peter VALENT
Petra VERDINO
Walter KELLER
Dietrich KRAFT
Rudolf VALENTA

<120> Hypoallergenic Allergy Vaccines Based on the Timothy Grass
Pollen Allergen PHL p 7

<130> 24741-1539

<140> Unassigned
<141> March 25, 2005

<150> PCT/EP03/010701
<151> September 25, 2003

<150> EP 02021837.6
<151> September 27, 2002

<160> 11

<170> PatentIn version 3.1

<210> 1

<211> 78

<212> PRT

<213> Phleum pratense

<400> 1

Met Ala Asp Asp Met Glu Arg Ile Phe Lys Arg Phe Asp Thr Asn Gly
1 5 10 15

Asp Gly Lys Ile Ser Leu Ser Glu Leu Thr Asp Ala Leu Arg Thr Leu
20 25 30

Gly Ser Thr Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu Ile Asp
35 40 45

Thr Asp Gly Asp Gly Phe Ile Asp Phe Asn Glu Phe Ile Ser Phe Cys
50 55 60

Asn Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75

<210> 2

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide 1

<400> 2

Ala Asp Asp Met Glu Arg Ile Phe Lys Arg Phe Asp Thr Asn Gly Asp
1 5 10 15

Gly Lys Ile Ser Leu Ser Glu Leu Thr Asp Ala Leu Arg Thr Leu Gly
20 25 30

Ser Thr Ser Ala
35

<210> 3

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide 2

<400> 3

Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu Ile Asp Thr Asp Gly
1 5 10 15

Asp Gly Phe Ile Asp Phe Asn Glu Phe Ile Ser Phe Cys Asn Ala Asn
20 25 30

Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
35 40

<210> 4

<211> 78

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant 1.6

24741-1539.txt

<400> 4

Met Ala Asp Asp Met Glu Arg Ile Phe Lys Arg Phe Asp Thr Asn Gly
1 5 10 15

Asp Gly Lys Ile Ser Leu Ser Ala Leu Thr Asp Ala Leu Arg Thr Leu
20 25 30

Gly Ser Thr Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu Ile Asp
35 40 45

Thr Asp Gly Asp Gly Phe Ile Asp Phe Asn Ala Phe Ile Ser Phe Cys
50 55 60

Asn Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75

<210> 5

<211> 78

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant 2A

<400> 5

Met Ala Asp Asp Met Glu Arg Ile Phe Lys Arg Phe Asp Thr Asn Gly
1 5 10 15

Ala Gly Lys Ile Ser Leu Ser Ala Leu Thr Asp Ala Leu Arg Thr Leu
20 25 30

Gly Ser Thr Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu Ile Asp
35 40 45

Thr Asp Gly Asp Gly Phe Ile Asp Phe Asn Ala Phe Ile Ser Phe Cys
50 55 60

Asn Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75

<210> 6

<211> 78

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant 4

<400> 6

Met Ala Asp Asp Met Glu Arg Ile Phe Lys Arg Phe Asp Thr Asn Gly
1 5 10 15

Ala Gly Lys Ile Ser Leu Ser Ala Leu Thr Asp Ala Leu Arg Thr Leu
20 25 30

Gly Ser Thr Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu Ile Asp
35 40 45

Thr Asp Gly Ala Gly Phe Ile Asp Phe Asn Ala Phe Ile Ser Phe Cys
50 55 60

Asn Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75

<210> 7

<211> 85

<212> PRT

<213> Alnus glutinosa

<400> 7

Met Ala Asp Asp His Pro Gln Asp Gln Ala Glu His Glu Arg Ile Phe
1 5 10 15

Lys Cys Phe Asp Ala Asn Gly Asp Gly Lys Ile Ser Ala Ser Glu Leu
20 25 30

Gly Asp Ala Leu Lys Thr Leu Gly Ser Val Thr Pro Asp Glu Val Lys
35 40 45

His Met Met Ala Glu Ile Asp Thr Asp Gly Asp Gly Phe Ile Ser Phe
50 55 60

Gln Glu Phe Thr Asn Phe Ala Arg Ala Asn Arg Gly Leu Val Lys Asp
65 70 75 80

Val Ala Lys Ile Phe
85

<210> 8

<211> 80

<212> PRT

<213> Cynodon dactylon

<400> 8

Met Ala Asp Thr Gly Asp Met Glu His Ile Phe Lys Arg Phe Asp Thr
1 5 10 15

Asn Gly Asp Gly Lys Ile Ser Leu Ala Glu Leu Thr Asp Ala Leu Arg
20 25 30

Thr Leu Gly Ser Thr Ser Ala Asp Glu Val Gln Arg Met Met Ala Glu
35 40 45

Ile Asp Thr Asp Gly Asp Gly Phe Ile Asp Phe Asp Glu Phe Ile Ser
50 55 60

Phe Cys Asn Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75 80

<210> 9

<211> 84

<212> PRT

<213> Olea europaea

<400> 9

Met Ala Asp Asp Pro Gln Glu Val Ala Glu His Glu Arg Ile Phe Lys
1 5 10 15

Arg Phe Asp Ala Asn Gly Asp Gly Lys Ile Ser Ser Ser Glu Leu Gly
20 25 30

Glu Thr Leu Lys Thr Leu Gly Ser Val Thr Pro Glu Glu Ile Gln Arg
35 40 45

Met Met Ala Glu Ile Asp Thr Asp Gly Asp Gly Phe Ile Ser Phe Glu
50 55 60

Glu Phe Thr Val Phe Ala Arg Ala Asn Arg Gly Leu Val Lys Asp Val
65 70 75 80

Ala Lys Ile Phe

<210> 10

<211> 85

<212> PRT

<213> Betula pendula

<400> 10

Met Ala Asp Asp His Pro Gln Asp Lys Ala Glu Arg Glu Arg Ile Phe
 1 5 10 15

Lys Arg Phe Asp Ala Asn Gly Asp Gly Lys Ile Ser Ala Ala Glu Leu
 20 25 30

Gly Glu Ala Leu Lys Thr Leu Gly Ser Ile Thr Pro Asp Glu Val Lys
 35 40 45

His Met Met Ala Glu Ile Asp Thr Asp Gly Asp Gly Phe Ile Ser Phe
 50 55 60

Gln Glu Phe Thr Asp Phe Gly Arg Ala Asn Arg Gly Leu Leu Lys Asp
 65 70 75 80

Val Ala Lys Ile Phe
 85

<210> 11

<211> 79

<212> PRT

<213> Brassica rapa

<400> 11

Met Ala Asp Ala Glu His Glu Arg Ile Phe Lys Lys Phe Asp Thr Asp
 1 5 10 15

Gly Asp Gly Lys Ile Ser Ala Ala Glu Leu Glu Glu Ala Leu Lys Lys
 20 25 30

Leu Gly Ser Val Thr Pro Asp Asp Val Thr Arg Met Met Ala Lys Ile
 35 40 45

Asp Thr Asp Gly Asp Gly Asn Ile Ser Phe Gln Glu Phe Thr Glu Phe
 Page 6

50

55

Ala Ser Ala Asn Pro Gly Leu Met Lys Asp Val Ala Lys Val Phe
65 70 75